

Web Based Online Diagnosis for Erectile Dysfunction Using International Index of Erectile Function (IIEF)

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INTRODUCTION

Erectile Dysfunction (ED) has been defined as an inability to achieve or maintain an erection sufficient for satisfactory sexual performance [1]. Widely used tool to measure ED across the world is International Index of Erectile Function (IIEF) questionnaire [2, 5, 6 - 8]. This is one of several questionnaires usually used by physician besides other history, physical examination and investigations. Most ED patients do not seek appropriate treatment because of their low self esteem and unwilling to discuss openly their problems with others. Moreover, travelling to the physician's clinics can be costly. Finding an appropriate time for an appointment with physician is also very difficult. Thus, to overcome these problems online and remote consultations is very important to the ED patients. This paper proposes the development of web based online diagnosis of ED using IIEF.

METHODOLOGY

International Index of Erectile Function(IIEF)

IIEF is a self reported composite multidimensional measurement scale for male sexual function supported by rigorous psychometric, cultural and linguistic validation [2]. It consists of 15 questions, which are divided into five sections that are erectile function, orgasmic function, sexual desire, intercourse satisfaction and overall satisfaction. A abridge version of IIEF is called IIEF-5 which only consist 5 questions. IIEF-5 was reported as reliable to be used as diagnostic of ED [2, 5, 6 - 8]. Furthermore, IIEF-5 score can be used to identify the severity of ED level such as mild, moderate and severe as shown in Table 1.IIEF-5 which

abridge version of IIEF comprises items 2,4,5,7 and 15. Each item will have 5 answers scores from 1 to 5. To calculate IIEF-5 score, the answers will be added according to scores of the answer.

Web based diagnostic

Online diagnosis of erectile dysfunction is done through web. Every patient is required to answer several questions and the system will analyze and inform the patient about the severity of their ED. If necessary, the patient will be referred to the appropriate physician for further online consultation. From there, the patient and physician can meet virtually at their own convenience. Patient's medical records can be easily access by authorized physicians. Based on the patient's medical history, physicians can advice the best solution to the patient. All conversation or consultation is recorded online. With the patient's approval, other physicians may be able to access the patient's medical record to treat other concomitant conditions.

Web server

A web server is needed for webhosting. Its function is to serve any host or clients who want to access the web pages that are available using Hyper Text Transfer Protocol (HTTP). It can also be set to block or allows access to specific web page or directory based on who's the client access that pages. This is a form of security that can prevent unauthorized personal to access to the confidential information. For this study, Internet Information Server (IIS) version 5.1 has been chosen due to its sufficient stability and reliability in supporting ASP.NET web application engine. Figure 1 shows how the web server works.

Web Application

Web application is an application that is accessed via internet or intranet. Commonly it is structured as three tiered application which consist of presentation, logical and

data tier. Presentation tier is web browser (e.g. Internet Explorer, Mozilla Firefox, etc), logical tier is dynamic web content technology (e.g. ASP.NET) and data tier is database (e.g. MySQL, Microsoft SQL, Oracle, etc). For this study, ASP.NET is chosen because it have easy programming model, flexible programming languages (C#, VB.NET and Jscript.NET), great and free tool support (Visual Web Developer 2008), enhance reliability and user friendly [3, 9].

SYSTEM DESIGN

The Design of online Diagnosis of Erectile Dysfunction using IIEF is separated into two parts which are patient and physician interfaces. Each interface will show different tools, link and information based on the user authority of the system.

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